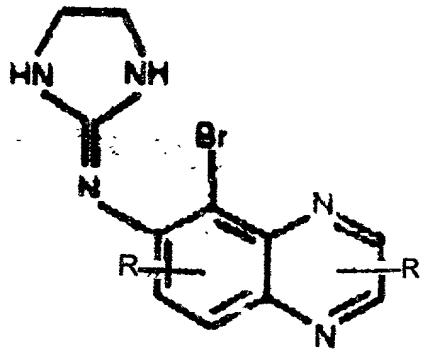
What is claimed is:

1. A method of inhibiting a degenerative condition of a retinal photoreceptor cell, said method comprising contacting a photoreceptor cell having a degenerative condition with a composition comprising a brimonidine compound in an amount effective to inhibit the degenerative condition.

2. The method of claim 1 wherein the brimonidine compound has the following structure:



Where R is C_{1-5} alkyl, Br, Cl or NO_2, and pharmaceutically acceptable salts thereof.

3. The method of claim 1, wherein the brimonidine compound is brimonidine tartrate.

4. The method of claim 1, wherein the amount of brimonidine is between about 0.01% and about 0.05% in a pharmaceutically acceptable vehicle.

5. A method of treating a degenerative condition of retinal photoreceptors, said method comprising administering to a subject in need thereof, a composition comprising a brimonidine compound in an amount effective to delay or reverse said condition.

6. The method of claim 5, wherein the brimonidine compound is administered topically to the eye.

7. The method of claim 5, wherein the amount of brimonidine provides between about 10 and about 1000 nanomolar intraocular concentration.

8. The method of claim 5, wherein said subject is a vertebrate.

9. The method of claim 8, wherein said vertebrate is a mammal.

10. The method of claim 9, wherein said vertebrate is a human being.

11. The method of claim 5, wherein said condition is retinal detachment.

12. The method of claim 5, wherein said condition is age-related macular degeneration.

13. The method of claim 5, wherein said condition is retinitis pigmentosa.

14. A method of reversing or delaying degeneration of a photoreceptor cell in a retina, comprising contacting said retina with a composition that includes an amount of a brimonidine compound effective to inhibit GFAP expression in Müller cells.

15. A method of reversing or delaying degeneration of a photoreceptor cell in a retina, comprising contacting said retina with a composition that includes an amount of a brimonidine compound effective to stimulate upregulation of glutamine synthetase in Müller cells.

16. The method in claim 14 or 15, wherein the brimonidine compound is brimonidine tartrate.

17. The method in claim 14 or 15, wherein the contacting is by topical administration.

18. A kit comprising in suitable container means, a brimonidine composition pharmaceutically suitable for topical administration to the eye, and instructions for administration to a subject in need of treatment for retinal degeneration.

19. A composition comprising a brimonidine compound and at least one human growth factor selected from the group consisting of basic fibroblast growth factor (bFGF), glian-derived neurotrophic factor (CNTF), pigment epithelium-derived factor (PEDF), glial-derived neurotrophic factor (GDNF), and brain-derived neurotrophic factor (BDNF).

20. The composition of claim 19 comprised within a pharmaceutical vehicle suitable for topical administration.

21. A composition comprising a brimonidine compound and a wetting agent.

22. The composition of claim 21 wherein the wetting agent is selected from the group consisting of tyloxapol, polyvinyl alcohol, hydroxyalkyl cellulose, methylcellulose, polyvinyl pyrrolidone, or polyquarternium-10.

23. The composition of claim 19 or 21 further comprising an anti-allergenic/anti-inflammatory drug selected from the group consisting of H1 histamine receptor antagonists, non-steroidal anti-inflammatory compounds (NSAID) and mast cell stabilizers.

24. The composition of claim 23 wherein the brimonidine is brimonidine tartrate, and the anti-allergenic/anti-inflammatory agent is selected from the group consisting of H1 histamine receptor
antagonists, Ketotifen hydrochloride, Levocabastine hydrochloride, Olopatadine hydrochloride, emedastine difumarate, Ketorolac tromethamine, Diclofenac sodium, Cromolyn sodium and Lodoxamide tromethamine.